

Potentiometric Phase Shifter.

108-5-12/13

sine-cosine potentiometer as well as by its resistance and construction. (With 4 Illustrations and 2 Slavic References).

ASSOCIATION: Not given

PRESENTED BY:

SUBMITTED: 30.6.1955

AVAILABLE: Library of Congress

Card 2/2

MELIK-SHAKHNAZAROV, A. M.

32-8-39/61

AUTHORS Melik-Shakhnazarov, A.M., Alizade, G.A.,  
and Aliyev, T.M.

TITLE An electrical recording micrometer. (Elektricheskiy  
registriruyushchiy mikrometr).

PERIODICAL Zavodskaya Laboratoriya, 1957, Vol. 23, Nr 8, pp.979-980 (USSR.)

ABSTRACT This apparatus is used in recording small linear displacements in a set of stable elements, i.e. for the recording of voltages or of pressure. The principle here is the transformation of a given displacement into the proportional electric voltage which is measured. This transformation is brought about by a differential induction indicator. The latter has a cylindrical form and consists of two immovable magnetic wires which are connected by a steel ring. In the space between the two magnetic wires are two coils (the exciting and the measuring one). The windings of the exciting coil are connected in series and the alternating voltage is fed to them. The windings of the measuring coil are connected in opposition. In the free space between the magnetic wires is an iron armature with tie bar into whose ends a given displacement is transferred by an elastic element. The voltage in the output of the indicator  $E_a$  is the function of the position of the armature. This voltage is transferred to the clamps of the autocompensating devide which consists of the following points: a ferrodynamic meter with working frame and compensating frame, an

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An electrical recording micrometer.

electron multiplier, a phase displacement device and a compensating angle. The recordings of the ferrodynamic meter take place in linear coordinates. The autocompensating device of the apparatus possesses a high resistance of entering and therefore the work of the apparatus lies close to the no-load regime. By the selection of a corresponding coefficient of amplification the possibility of recording rapidly varying values is given. (2 illustrations).

ASSOCIATION Azerbaydzhani industrial institute imeni Azizbekov (Azerbaydzhanskiy industrialnyy institut imeni Azizbekova).

AVAILABLE Library of Congress.

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Melik-Shakhnazarov, H. G.

ALIYEV, T.M.; ALIZADE, G.A.; MELIK-SAKHNAZAROV, A.M.; SHAKHMALIYEV, G.M.

A general apparatus for studying the operation of drilling equipment. Azerb.neft.khoz, 36 no.3:21-27 Mr '57. (MLRA 10:5)  
(Oil wells--Equipment and supplies)

M E L I K - S H A K H N A Z A R O V , A . M.

11(4) PHASE I BOOK EXPLOITATION 307/2124

*Mechanizmovoye sovremennoye po voprosam novoy tekhniki v neftyanoy prochnosti.* Moscow, 1955

Ravedka i razrabotka neftyanykh i gazonikh mestorozhdeniy: materialy sushashchiny, tom. 1 (prospecting and Development of Oil and Gas Deposits). Papers of the International Conference on New Techniques in the Petroleum Industry, Vol. 1. Moscow, Gosstekhnizdat, 1958. 311 p. Errata slip. 1,200 copies printed.

Eds.: I. M. Murav'ev, Professor, Doctor of Technical Sciences, and V. M. Dukhov, Professor, Doctor of Geological and Mineralogical Sciences; Editorial Board: K. P. Zhigach, Professor (Chairman); I. M. Murav'ev, Professor, A. A. Shishkov, Candidate of Geological Sciences; V. I. Yegorov, Candidate of Economic Sciences; A. N. M. Charygin, Professor, P. P. Dunayev, Professor, A. I. Chernomutov, Professor, Ye. M. Dusmukhamedov, Professor, I. A. Charygina, Professor, G. M. Pan'chenkov, Professor, V. N. Dukhov, Professor, Doctor of Geological and Mineralogical Sciences; N. S. Maskein, Doctor of Chemical Sciences; N. A. Almazov, Docent, V. N. Vinogradov, Candidate of Technical Sciences; V. I. Biryukov, Candidate of Technical Sciences; E. I. Tadzyev, and V. M. Gorovitch, Technical Editor; M. P. Dobrynina; Techn. Ed.: E. A. Pluhina.

PURPOSE: The book is intended for engineers and scientific personnel working in the petroleum industry and universities. It may also serve as a textbook for advanced students of petroleum physics.

COVERAGE: The book contains articles written by staff members of the Neftegaz, Orenburg, and Ufa Scientific Institutes, the Kurbatov and Azerbaychan Industrial Institute, the Urals (Ufa) Scientific Research Institute, the All Union Scientific Research Institute of Oil Drilling, KGBP (Scientific Office of Petroleum Instrument Making), the Bauman Association (Bain-Mirsky Petroleum). These papers, read at the Saratov (Russia) scientific Conference, deal with new techniques in the Petroleum industry introduced since 1956. Emphasis is given to the importance of efficient drilling, geophysical prospecting, working of oil and gas deposits, and the use of new devices employed in oil and gas exploitation. There are 32 references: 44 Soviet, and 8 English.

Zhigach, K. P.; I. M. Murav'ev, and M. M. Goncharov (Moscow Petroleum Institute), Petroleum-Based Drilling Fluids 92  
 The authors state that petroleum-base drilling fluids are being used to open productive horizons to maintain the penetration rate at the bottom-hole zone, and to increase the well output. The use of petroleum-base drilling fluids is particularly efficient for opening formations with high permeability and low pressure, where the absorption of a large amount of mud by the productive formation may prove dangerous. Petroleum-base drilling fluids also prove useful in opening formations with low permeability, particularly where the formation contains swelling clay. Petroleum-base drilling fluids produce good results in drilling under complex geological conditions and in drilling deep and directional wells. (32)

[Design Office of Petroleum Equipment], con- 261  
Isakovich, I. Ya. [Design Office of Petroleum Production Control and Measuring Devices Used in Petroleum Production and Research].  
The author gives data on new equipment designed or research and control and measuring instruments used in working oil deposits. Equipment developed by the KINN may be divided into the following group: 1) equipment for the study of petroleum reservoirs; 2) equipment for the study of petroleum properties under formation conditions; 3) control and measuring devices and equipment for depth measurement. The article also refers briefly to work on automation, remote control, and the management of processes of petroleum production.

Ivanov, M. M. [Ural Petroleum Scientific Research Institute].  
New Upright Instruments for Studying Deep Wells.  
The author lists new models of UFNII-designed depth instruments. Between 1953 and November 1955 work was performed with the aid of DDM-A differential manometers in studying well interference and the precise location of the interwell interval of Devonian formations at the Tymay oil deposits. These studies led to important conclusions on the structure of oil formation D<sub>2</sub> and D<sub>2</sub>. In the Tymay area and confirmed the existence of hydraulic contact between the two formations. A depth piezograph, produced at the UFNII Institute is now undergoing industrial tests.

Allade, G. A., Yu. V. Orlizhev, A. M. Molik-Shashkovsky, and I. V. Yermakman [Azerbaijan Industrial Institute]. Telemetering Parameters of Deep Oil Wells 304  
The authors discuss the importance of depth studies (in drilling and working oil wells). The Azerbaijan Institute studies and designs devices for the continuous automatic telemetering of parameters of deep wells. The article describes several experimental models of these devices.

SOV/112-59-5-9612

14(5)

Translation from: Referativnyy zhurnal. Elektrotehnika, 1959, Nr 5, p 165 (USSR)  
AUTHOR: Alizade, G. A., Grachev, Yu. V., Melik-Shakhnazarov, A. M., and  
Fridman, M. Ye.

TITLE: Telemetering Depth Parameters in Oil Drill Holes

PERIODICAL: Materialy Mezhvuz. soveshchaniya po vopr. novoy tekhn. v neft.  
prom-sti, 1958, Vol 1, pp 304-310

ABSTRACT: Existing methods of depth measurements do not ensure continuous monitoring of depth parameters and require considerable working time. In operating a bore-hole, it is desirable to monitor the dynamic level, specific weight, temperature of the hole liquid, etc. The Azerbaijan Industrial Institute has tried to develop devices for continuous automatic telemetering of the bore-hole depth parameters. As the first objects for which telemetering equipment is intended, the holes bored by an electric drill and operated by an immersible electric pump have been selected. A pulse type inclinometer for

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SOV/112-59-5-9612

**Telemetering Depth Parameters in Oil Drill Holes**

the electric drill is manufactured in two types: (a) for measuring curvature, hole azimuth, and deflector-bearing azimuth; (b) for measuring the deflector bearing with respect to known hole azimuth and hole curvature. The first equipment contains a primary detector for measuring the hole azimuth which is determined with respect to the terrestrial magnetic field. The second equipment is mounted in conventional bore piping, which results in a considerable simplification. A model inclinometer has a curvature error of  $\pm 30'$  and a deflector-bearing angle error of  $\pm 5^{\circ}$  for the hole curvature of over  $5^{\circ}$ . Primary-detector readings are recorded by special instruments installed on the surface. The depth part of the equipment has a very simple construction and is designed for continuous operation in the hole. Tests showed good results of the scheme operation; the error of measurement is not over 3%. At present, better models have been developed. Five illustrations.

A.A.R.

Card 2/2

119-2-4/13

AUTHOR:

Melik-Shakhnazarov, A.M.

TITLE:

On the Problem of the Calculation and Construction of Induction  
Transformers (K voprosu o raschete i konstruirovaniyu  
induktsionnykh preobrazovateley).

PERIODICAL:

Priborostroyeniye, 1958, Nr 2, pp. 13-15 (USSR)

ABSTRACT:

A magnetoelectric galvanometer with an induction transformer is a device in the air gap of which two magnetic fields - a constant and an alternating field - are simultaneously active. In the case of a deflection of the galvanometer frame from the initial position, an alternating voltage is induced in it which is proportional to the frame angle. This voltage is amplified and measured. The measuring systems with induction transformer can be closed - i.e. self-compensating - or open. As an example an induction transformer is calculated, and it is shown in what manner it is best connected for various purposes of measuring. When calculating induction transformers it is quite possible to use the dependences which are known for ferrodynamic galvanometers. For the improvement of induction transformers it is recommended to use semiconductor elements in the generator and amplifier part.

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On the Problem of the Calculation and Construction  
of Induction Transformers

119-2-4/13

This is the more effective, the more the power needed for excitation of the coil is small, and indications made by a device in a self-compensating scheme do not depend on the modification of the parameters of the elements used. There are 8 figures.

AVAILABLE: Library of Congress

Card 2/2      1. Transformers-Design    2. Transformers-USSR

MELIK-SHAHNAROV, A.M.

Designing a ferrodynamic galvanometer. Izm.tehn. no.2:52-55  
Mr-Ap '58. (MIRA 11:3)  
(Galvanometer)

ALIZADE, G.A.; MELIK-SHAHNAZAROV, A.M.; GRACHEV, Yu.V.; FRIDMAN, M.Ye.

Impulse inclinometer for electrodrilling. Izv. vys. ucheb. zav.:  
neft' i gaz no.2:53-57 '58. (MIRA 11:8)

1. Azerbajdzhan'skiy industrial'nyy institut im. Arisbekova.  
(Inclinometer)

S(2)

AUTHORS:

Kulikovskiy, L. F., Doctor of Technical Sciences, Professor,  
Malik-Shakhnazarov, A. M., Candidate of Technical Sciences, Docent

SOV/119-59-5-3/22

TITLE:

The Automatic Regulation of the Intensity of Alternating Current by an Electrostatic Comparator (Avtomatischekaya ustavovka velichiny peremennogo toka elektrostaticheskim komparatorom)

PERIODICAL:

Priborostroyeniye, 1959, Nr 5, pp 7-8 (USSR)

ABSTRACT:

The use of voltage stabilizers with a high stabilizing coefficient in the d.c. and a.c. compensators with hand control requires an increase in accuracy of the stabilizers. The operating personnel need not periodically regulate the operating current, thus increasing the rate of the measuring process. The accuracy of stabilizers can easily be increased by means of a current circuit in which an electrostatic comparator is installed. This comparator consists of a differential electrostatic sensitive element, a source of a stable constant tension, a battery of normal elements, and a photomultiplier. The mode of operation of the electrostatic sensitive element and the corresponding equations are briefly discussed. A drawback of the device discussed here is a certain complicacy caused by the servomechanism for the regulation of the

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The Automatic Regulation of the Intensity of Alternating Current by an Electrostatic Comparator SOV/119-59-5-3/22

resistor. Also the very construction of this resistor increases the complicity. The resistor consists of a cylindrical element with a wire attached to it on which a contact is shifted. The shortcomings just pointed out are avoided in another device discussed here. This device was already built and tested. In this new device, the plates in the electrostatic differential apparatus are arranged vertically. The most important technical data of this device are as follows: voltage of the battery 15 v, alternating voltage  $U_a$  150 to 250 v, photoresistor of the FS-K2 type. At a change in the voltage  $U_a$  within the limits 150-250 v, the current intensity varied by  $\pm 0.1\%$  at the most, which is, however, by no means the limit of efficiency of this device. With the use of stabler photoresistors, the current intensity can be kept constant even better. The above-mentioned electrostatic differential device was developed by A. M. Melik-Shahmazarov and Yu. I. Vidman. There are 2 figures and 3 Soviet references.

Card 2/2

MELIK-SAKHMAZAROV, A.M.

Electronic alternating current automatic compensators for  
geophysical measuring devices. Izv.vys.ucheb.zav.; neft' i  
gaz 2 no.9:109-116 '59. (MIRA 13:2)

1. Azerbaydzhanskiy institut nefti i khimii im. M.Azizbekova.  
(Oil well logging, Electric---Equipment and supplies)

SOV/115-59-7-13/33

28(1)

AUTHOR: Melik-Shakhnazarov, A.M.

TITLE: The Automation of Rectangular Coordinate Alternating Current Balancers

PERIODICAL: Izmeritel'naya tekhnika, 1959, Nr 7, pp 23-26 (USSR)

ABSTRACT: In this paper the author analyzes the function of an automatic balancer built according to the principle of an astatic servo system (Ref.3). Single studies for rectangular coordinate balancer automation have been made previously. However, in recent years, the development of automation facilitates a solution of the automation problem of rectangular coordinate balancer by more perfect methods using mass-produced units and elements. Fig.1 shows the principle circuit of an automatic rectangular coordinate balancer of the aforementioned type, developed at the Kafedra elektroizmereniy i avtomaticheskikh ustroystv Azerbaydzhanskogo industrial'nogo instituta (Chair of Electrical Measuring Instruments and Automation Devices of the Azerbaiydzhan Industrial Institute). The data presented in this paper were confirmed experimentally. Formulas presented

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SOV/115-59-7-13/33

**The Automation of Rectangular Coordinate Alternating Current Balancers**

in this paper explain some problems which are encountered in designing basic units of automatic rectangular-coordinate alternating current balancers. They may be used by organizations developing the aforementioned devices. There are 1 circuit diagram, 1 block diagram, 3 graphs and 4 Soviet references.

Card 2/2

MELIK-SHAKHNAZAROV, A.M., Dr Tech Sci (aiss) "Compensatory measuring devices for alternating current their development, study and automatization," Leningrad, 1960, 30 pp (Leningrad Agricultural Institute) (KL, 39-60, 115)

MELIK-SHAKHNAROV, A.M.

PHASE I BOOK EXPLOITATION SOV/5622

Kulikovskiy, Longin Frantsevich, and Aleksandr Mikhaylovich  
Melik-Shakhnazarov

Kompensatory peremennogo toka (Alternating-Current Potentiometers)  
Moscow, Gosenergoizdat, 1960. 175 p. 10,000 copies printed.

Ed.: N. V. Levitskaya; Tech. Ed.: K. P. Voronin.

PURPOSE: This book is intended for technical personnel concerned with electrical measurements and the development of means of automation. It may also be useful to students in advanced courses on automatic, electrical measuring, and telemechanical instruments and devices.

COVERAGE: The book discusses a-c potentiometers with manual and automatic balancing, compensating general problems of a-c compensating measurements, compensating circuits and their elements, and the practical application of potentiometers. According to the authors this book is the first attempt to present a comprehensive investigation of a-c potentiometers. They have

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Can

-ers with a phase-shifter

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S/146/60/003/005/001/017  
B019/B054

9,1600 (also 1050)

AUTHOR:

Melik-Shakhnazarov, A. M.

TITLE:

Balancing Process in a.c. Polar Coordinate Compensators

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy. Priborostroyeniye,  
1960, Vol. 3, No. 5, pp. 3-9

TEXT: The author studies the balancing process of a.c. compensators with successive and simultaneous balancing according to phase and amplitude. The compensator has a phase-sensitive zero organ, and consists of a phase regulator, two phase-sensitive blocks, a phase shifter, a voltage divider for the balancing voltage, two final control motors, and a switch. The author studies the balancing processes of this compensator by means of vector diagrams, and obtains from the resulting relations the formula

$$n = \frac{\log \beta - \log(1 - \sqrt{1 - \tan^2 \gamma})}{\log \tan \gamma} + 3 \quad (20),$$
 where  $n$  is the number of balancing processes, and  $\gamma$  the angle between the vector  $\vec{A}_a$  characterizing the phase-

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Balancing Process in a.c. Polar Coordinate Compensators

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B019/B054

sensitive block in amplitude compensation and the vector  $\vec{U}_k$  for the balancing voltage in phase compensation. It appears from (20) that balancing at  $\gamma > 45^\circ$  is not convergent. The parameters of the measuring circuit and the compensator should be chosen as to fulfill the condition  $\gamma < (20^\circ - 30^\circ)$ . These conditions were established for a compensator working on polar coordinates. The results obtained are in agreement with earlier results (Refs. 1, 2, 3) for rectangular coordinates. It is convenient for a quick balancing to use a higher speed for the phase-regulator motor than for the motor driving the voltage-divider contact. The publication of this article was recommended by the Kafedra elektroizmereniy i avtomaticheskikh ustroystv (Chair of Electrical Measuring and Automatic Devices). There 6 figures and 4 Soviet references.

ASSOCIATION: Azerbaydzhanskiy institut nefti i khimii imeni M. Azizbekova  
(Azerbaijan Institute of Petroleum and Chemistry imeni M. Azizbekov)

SUBMITTED: March 17, 1960

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S/146/60/003/005/002/017  
B019/B054

26.2191

AUTHORS:

Melik-Shakhnazarov, A. M., Savin, V. V.

TITLE:

Telemetering Self-compensating System for Pressure Measure-  
mentPERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Priborostroyeniye,  
1960, Vol. 3, No. 5, pp. 10-19

TEXT: In the telemetering system described here, the pressure is converted into voltage by means of an induction converter. A pressure gage is coupled to the induction converter whose exciter coil is fed by a generator. The signal of the induction converter is amplified, rectified, and supplied to the far distant indicator. The induction converter simultaneously operates with a permanent magnetic field and a high-frequency alternating field. It has a linear characteristic. Some constructional variants are discussed. The electric circuit of the whole measuring system is based on the semiconductor system. The voltage delivered by the converter is amplified by a three-stage amplifier, and fed to a phase-sensitive rectifier. Tests have shown that the output current remains steady in the rectifier. X

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Telemetering Self-compensating System for  
Pressure Measurement

S/146/60/003/005/002/017  
B019/B054

case of variations of the feeding voltage of  $\pm 20\%$ ; the error is  $0.9\%$  in variations of  $40\%$ . The temperature of the environment may attain  $55^{\circ}\text{C}$ , and the distance over which the measuring voltage can be transmitted is 20 km. Output power is 20 mw, power consumption is 1 w. Professor A. V. Fremke (Ref. 6) is mentioned. The publication of this article was recommended by the Kafedra elektroizmereniy i avtomaticheskikh ustroystv (Chair of Electrical Measuring and Automatic Devices). There are 6 figures, 2 tables, and 7 Soviet references.

ASSOCIATION: Azerbaydzhanskiy institut nefti i khimii imeni M. Azizbekova  
(Azerbaydzhani Institute of Petroleum and Chemistry imeni  
M. Azizbekov)

SUBMITTED: March 23, 1960

Card 2/2

~~SHAKHNAZAROV, A.M.; ALIZADE, G.A.; MEL'NIKOV, A.G.; ALIYEV, T.M.~~

BK-7-AZINEFTEKHIM laterlogging a seven-electrode device  
on a single-core cable. Izv. vys. ucheb. zav.; neft' i gaz  
3 no.5:121-126 '60. (MIRA 15:6)

1. Azerbaydzhanskiy institut nefti i khimii imeni Azizbekova.  
(Oil well logging. Electric—Equipment and supplies)

MELIK-SHAKHNAZAROV, A.M.; MEL'NIKOV, A.G.

Using the intensity method for designing remote measurement  
systems of geophysical electric logging apparatus. Izv.vys.  
ucheb.zav.; neft' i gaz 3 no.6:129-134 '60.  
(MIRA 13:7)

1. Azerbaydzhanskiy institut nefti i khimii im. M.Arisbekova.  
(Oil well logging, Electric--Equipment and supplies)

MELIK-SAKNAZAROV, A. M. and ALIYEV, T. M.

"Automation of Compensating Measuring Arrangements of Alternating Current." I

report presented at the 2nd Intl. Conference of Instruments and Measurements,  
(IMEKO) Budapest, 25 June- 1 July 1961

S/880/61/000/079/003/011  
E194/E455

AUTHOR: Melik-Shakhnazarov, A.M.  
TITLE: The use of phase-sensitive balance indicators in polar a.c. potentiometers  
SOURCE: Lvov. Politekhnichnyy institut. Nauchnyye zapiski. no.79. Voprosy elektroizmeritel'noy tekhniki. no.1. 1971. 36-42

TEXT: The possible use of phase-sensitive balance indicators is considered in application to polar a.c. potentiometers used as industrial regulators and computer devices. Such devices commonly use phase-insensitive balance indicators whereby, in principle, balance can be achieved in two steps: phase and amplitude. In practice, two steps are seldom sufficient because the sensitivity of the indicator cannot be fully used in the earlier stages of the balancing process. When a phase-sensitive balance indicator is used, a phase-shifting device is installed between the main balancing phase-regulator and the zero indicator. This phase-shifting device has two terminal positions: in one the balance indicator is sensitive to measured voltage, which is in Card 1/2

S/880/61/000/079/003/011  
E194/E455

The use of phase-sensitive ...

phase with the compensating voltage; in the other it receives the quadrature voltage. One position is used for phase balancing and the other for amplitude balancing. It is shown that in both cases balance is achieved by approaching the zero value with maximum sensitivity of the balance indicator, so that only two steps are required. It is shown that when the indicator is sensitive to current, rather than voltage, accurate balance cannot be obtained in two steps, the magnitude of the remanent voltage being very dependent on the phase-shift angle in the measuring circuit. Indeed, if this angle exceeds 20 to 30° the balancing process is not convergent. Consequently, when phase-sensitive balance indicators are used the measuring circuit should have the lowest possible phase-shift angle for all values of impedance of measured objects. The best solution is to use an indicator of high input impedance, in particular an electronic balance indicator, whereby balance can be achieved in two operations. There are 7 figures.

Card 2/2

IBRAGIMOV, I.E.; MELIK-SAKHNAROV, A.M.; SHAYN, I.L.; BELKIN, I.G.

Electronic model of an automatic a.c. compensator in rectangular coordinates. Izv. AN Azerb.SSR.Ser.fiz.-mat. i tekhn. nauk no.4:  
25-32 '61. (MIRA 14:12)  
(Electronic apparatus and appliances--Models)  
(Measuring instruments)

MELIK-SAKHNAROV, A.M.; SHAYN, I.L.; ALIYEV, T.M.

Developing an automatic digital a.c. compensator. Izv.vys.  
ucheb.zav.; prib. 4 no.6:67-71 '61. (MIRA 14:12)

1. Azerbaydzhanskiy institut nefti i khimii Azizbekova.  
Rekomendovana kafedroy elektricheskikh izmereniy i avtomatiki.  
(Electronic measurements)

10509-63 BIDS  
ACCESSION NR: AP3000194

S/0115/63/000/005/0024/0026

49

AUTHOR: Melik-Shakhnazarov, A. M.; Savin, V. V.

TITLE: Slidewireless automatic d-c potentiometer

SOURCE: Izmeritel'naya tekhnika, no. 5, 1963, 24-26

TOPIC TAGS: brushless potentiometer, contactless potentiometer, inductive potentiometer, automatic potentiometer, potentiometer

ABSTRACT: The design and operation of a servo-driven d-c potentiometer in the form of an inductive transducer is described. The circuit (See Fig. 1 of Enclosure) consists of potentiometer 1 and inductive compensating network 2. The voltage to be measured,  $e_x$ , is applied to the potentiometer motor control winding via an amplifier, causing the rotor to turn through an angle  $\alpha$  and exert a torque on spiral spring C, which in turn rotates the rotor of inductive followup 3. Due to primary excitation from oscillator 4, motion of this rotor induces an a-c signal in its winding; this signal is amplified, rectified, and fed back as current I, producing countertorque  $M_k$  in the coupling spring C and also developing

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ACCESSION NR: AP3000194

null voltage  $U_k$  across resistor  $R_k$ . The transfer functions of all elements are given, as well as the system transfer functions when either potentiometer angle  $\alpha$  or feedback current  $I$  is considered as the output parameter. Results from a transistorized model show that the error in indicated voltage was about 0.5%. The model operated on 1 watt, and, because of the widely differing time constants in the potentiometer drive and inductive followup elements, was relatively insensitive to shock and vibration. Orig. art. has: 3 figures and 17 formulas.

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 12Jun63

ENCL: 01

SUB CODE: SD

NO REF SOV: 004

OTHER: 002

Card 2/3

MELIK-SAKHNNAZAROV, A.M.; ALIYEV, T.M.; SHAYN, I.L.

Investigating the balancing process in an automatic rectangular-crossbar a.c. compensator. Za tekhn. prog. 3 no.9:1-5 S '63.  
(MIRA 16:10)

1. Azerbaydzhanskiy institut nefti i khimii im. M.Azizbekova.

MELIK-SAKHNAZAROV, A.M.; ALIYEV, T.M.; SHAYN, I.L.

Self-compensating apparatus for measuring the electric conductivity  
of drilling fluids. Izv. vys. ucheb. zav.; neft' i gaz 6 no.2:  
101-104 '63. (MIRA 16:5)

1. Azerbaydzhanskiy institut nefti i khimii imeni M.Azisbekova.  
(Oil well drilling fluids—Electric properties)

AKSEL'ROD, S.M.; DANEVICH, V.I.; MELIK-SHAHNAZAROV, A.M.

Theory of nuclear magnetism logging. Izv. vys. ucheb. zav.;  
neft' i gaz 6 no.4:93-98 '63. (MIRA 16:7)

I. Azerbaydzhanskiy institut nefti i khimii imeni Azizbekova.  
(Oil well logging)

MELIK-SAKHNAROV, A.M.; MEL'NIKOV, A.G.; ORLOV, G.L.; SARKISOV, K.A.

Multichannel remote-control measuring device with double amplitude modulation for geophysical investigations of wells on a single cable. Izv. vys. ucheb. zav.; neft' i gaz 6 no.10:87-91  
'63. (MIRA 17:3)

1. Azerbaydzhanskiy institut nefti i khimii im. M.Azizbekova.

MELIK-SAKHNAZAROV, Aleksandr Mikhaylovich; ALIYEV, Tofiq Mamedovich;  
GOR'KUVA, A.A., ved. red.

[Instruments and methods for automatic control in the oil  
and gas industry] Pribory i sredstva avtomaticheskogo kont-  
rolia v neftianoi i gazovoi promyshlennosti. Moskva, Izd-  
vo "Nedra," 1964. 271 p. (MIRA 17:7)

KULIKOVSKIY, Longin Frantsevich; MELIK-SAKHNAZAROV, Aleksandr  
Mikhailovich; RABINOVICH, Semen Girshevich; SELIEN,  
Boris Abolevich; MAMIKONOV, A.G., red.; BORUNOV, N.I.,  
tekhn. red.

[Galvanometric compensators] Gal'vanometricheskie kom-  
pensatory. Moskva, Izd-vo "Energiia," 1964. 279 p.  
(MIRA 17:3)

L136145  
ACCESSION NR: AP4046788

S/0115/64/000/008/0034/0036

AUTHOR: Melik-Shakhnazarov, A. M.; Shayn, I. L.; Shakhmardanov, Sh. M.

TITLE: Automatic a-c compensator with an astatic-static balance

SOURCE: Izmeritel'naya tekhnika, no. 8, 1964, 34-36

TOPIC TAGS: AC compensator, single rheochord compensator

ABSTRACT: A new automatic single-rheochord a-c compensator is described. The compensator permits measuring both components of the voltage alternatively by using one balancing channel (one electronic amplifier, one final element, one readout). High accuracy is attained through simultaneous compensation of both components of the measurand, one of them being compensated astatically by means of the actuator motor and the rheochord, and the other by means of a negative feedback taken from a preamplifier. The voltage component measured on the rheochord scale is noted, and then the phases of compensating and

Card 1/2

L 13674-65  
ACCESSION NR: AP4046788

reference voltages of the balancing channel are shifted by 90°, which permits measuring the second voltage component. An experimental model had a range of 5~ mv, a balance-channel sensitivity of 10 microv, an error due to the second-channel interference of 0.04%, and a total error of 0.3%. Orig. art. has: 2 figures and 11 formulas.

ASSOCIATION: none

SUBMITTED: 00

SUB CODE: EE

NO REF SOV: 005

ENCL: 00

OTHER: 000

Card 2/2

ACCESSION NR: AP4018993

S/0146/64/007/001/0024/0031

AUTHOR: Melik-Shakhnazarov, A. M.; Leytman, M. B.

TITLE: Autocompensated pulse-time voltage converter

SOURCE: IVUZ. Priborostroyeniye, v. 7, no. 1, 1964, 24-31

TOPIC TAGS: pulse time converter, analog to digital converter, autocompensated pulse time converter, voltage pulse time converter, transistorized pulse time converter, telemeter, telemetering

ABSTRACT: Conventional pulse-time converters have complicated precise voltage-generating circuits and require amplification of the primary-detector voltage. A new converter circuit (see Enclosure 1) is proposed which obviates, to a degree, the above shortcomings by using a self-compensation principle. A transistorized tensometer-bridge voltage converter, for 2 mv maximum, was built and tested. Its output characteristic was found to be linear within 0.1%.

Card 1/32

ACCESSION NR: AP4018993

A variation of 0-2 mv of the tensometer-bridge voltage caused a pulse-duration variation of from  $4 \times 10^{-6}$  to  $15 \times 10^{-3}$  sec. The output-pulse duration varied within  $\pm 0.1\%$  for a supply-voltage variation within  $\pm 10\%$ . The device is recommended for short-pulse telemeter systems and for analog-to-digital converters. The no-preamplifier feature is regarded as a great advantage of the device. Orig. art. has: 5 figures and 10 formulas.

ASSOCIATION: Azerbaydzhanskiy institut nefti i khimii im. M. Azizbekova  
(Azerbaijan Institute of Petroleum and Chemistry)

SUBMITTED: 17Jan63

DATE ACQ: 23Mar64

ENCL: 01

SUB CODE: GE

NO REF SOV: 005

OTHER: 000

Card 2172

TETERUK, G.I.; ZAVYAZKIN, P.G.; ALIYEV, T.M.; ALIYEV, A.G.; MELIK-SAKHNAZAROV,  
A.M.; ARULIS, B.K.; BARTENEV, G.M.; YEL'KIN, A.I.; KOSTIN, V.I.;  
KHARKHARDIN, S.I.; SERGEYEV, A.I.; VARTANOV, S.Kh.; PRIMANCHUK, L.I.;  
MOLODTSOV, A.A.; SHMELEV, N.V.; ROVINSKIY, M.I.; ABRAMOV, N.N.;  
YEROFEYEV, L.V.; RYAKHIN, V.A.; ZELENIN, A.N.; BERKMAN, I.L.

Patent certificates for Soviet inventions. Stroi. truboprov. 9 no.5:  
(MIRA 17:9)  
35-36 My '64.

L 25565-66

ACC NR: AM0004738

Monograph

UR/

37

3+1

Aliyev, T. M.; Melik-Shahnazarov, A. M.; Shayn, I. L.

Automatic alternating current compensating devices (Avtomatushchiye kompensatsion-niye ustroystva peremennogo toka) Baku, Azgiz, 1965. 359 p. illus., biblio.  
1,360 copies printed

TOPIC TAGS: automatic control, industrial automation, petroleum industry, potentiometer

PURPOSE AND COVERAGE: The book is devoted to the theory of construction and practical application of automatic null-type measuring devices for alternating current, such as automatic potentiometers for laboratory and factory use. The instruments dealt with are automatic compensators for laboratory research, both universal and special-purpose, automatic compensation devices for production research, and automatic compensation devices for automatic control. The book deals with the theory, construction, and application of the various measuring devices, based on both the author's own research, and on the published literature by a number of workers in the field. It contains also the results of experience in the development and use of automatic null-type ac devices resulting from research carried out at the Azerbaydzhan Institute of Oil and Chemistry im. M. Azizbekov (Baku), the Scientific Research Institute Neftokhimavtomat (Sumgait), VNIIIEP (Leningrad), the Kuybyshev Polytechnic Institute, the Institute of Automation and Electric Measurements of the Siberian Department of AN SSSR (Novosibirsk), the Institute of Machine Research and Automation (L'vov), and others. The

Call 1/2

2

I. 25565-66

ACC-Nr. AM6004738

0

This book is intended for engineering, technical, and scientific workers engaged in the development and application of means of automation, information and measuring techniques, and computation techniques for the oil, electrochemical, chemical, and other branches of industry.

## TABLE OF CONTENTS [abridged]:

Introduction - - 3	
Ch. I. Automatic follow-up null-type ac devices with continuous balancing - - 10	
Ch. II. Digital automatic null-type ac devices - - 198	
Ch. III. Automatic ac null devices with cyclic operation - - 235	
Ch. IV. Problems of application of automatic null-type devices for alternating current - - 257	
Literature - - 351	

SUB CODE: 14/ SUBM DATE: 16Apr63/ ORIG REF: 135/ OTM REF: 015

Card 2/2 FW

ORNATSKIY, Petr Pavlovich, kand. tekhn. nauk; NESTERENKO, A.D.,  
doktor tekhn. nauk, retezent; MELIK-SHAKHNAZAROV,  
A.M., doktor tekhn. nauk, retsent

[Automatic measuring instruments; analog and digital]  
Avtomatycheskie izmeritel'nye pribory; analogovye i  
tsifrovye. Kiev, Tekhnika, 1965. 421 p.  
(MIRA 18:8)

KANTOROVICH, V.B. (Baku); MELIK-SHAKUNAZAROV, A.M. (Baku); SHASHN, I.L.  
(Baku)

Investigating the balancing process in automatic digital a.c. com-  
pensators. Avtometrika no.2:69-76 '65. (MIRA 18:9)

L 26675-66 EWT(1)/EWA(h)

ACC NR: AP6017128

SOURCE CODE: UR/0410/65/000/002/0069/0076

AUTHOR: Kantorovich, V. B. (Baku); Melik-Shakhnazarov, A. M. (Baku); Shayn, I. L. (Baku)

23  
B

ORG: none

TITLE: Investigation of the process of equilibration in digital automatic AC compensators [This paper was presented at the 6th All-Union Conference on Automatic Control and Methods of Electrical Measurement held at Novosibirsk in Sept., 1964]

SOURCE: Avtometriya, no. 2, 1965, 69-76

TOPIC TAGS: hodograph, digital system

ABSTRACT: The article presents a graphoanalytic method for investigation of the process of equilibration in digital automatic rectangular-coordinate ac compensators which consists of construction of a hodograph of the difference voltage  $\Delta V$  on the plane of compensating voltages and analysis of the nature of its displacement. A dependence is produced for the allowable degree of interdependence of the equilibration circuits and the compensator parameters. Orig. art. has: 4 figures and 12 formulas. [JPRS]

SUB CODE: 09 / SUBM DATE: 15Sep64 / ORIG RET: 005

UDC: 621.317.7.083.5

Card 1/1 BLG

L 27653-66 - EWT(1)/EWT(m) GW  
ACC NR. AP6018488

AUTHOR: Melik-Shakhnazarov, A. M.

ORG: none

SOURCE CODE: UR/0410/65/000/004/0003/0007  
TITLE: Principal problems of electrical measurements of deep parameters of boreholes

SOURCE: Avtometriya, no. 4, 1965, 3-7

TOPIC TAGS: radioactivity measurement, petrology

ABSTRACT: This is a review of the status of methods used for measurement of the deep parameters of boreholes. Particular attention is given to methods for measurement of the specific resistance in combination with other characteristics of strata. Various methods are described for determining the radioactivity of rocks, such as the gamma logging, neutron logging, neutron gamma logging, gamma-gamma logging and others. Various other methods for determining the characteristics of strata are discussed, such as the principle of nuclear magnetic resonance and the dielectric logging method. The various problems remaining unsolved in this field are touched upon briefly. [JPRS]

SUB CODE: 08,18 SUBM DATE: 22Mar65/ ORIG REF: 003/

UDC: 681.2.082+621.317.39

Card 1/1 CC

J. 27362-66 EWT(1)/FCC GW

ACC NR: AP6095276

SOURCE CODE: UR/0413/66/000/001/0009/0009

INVENTOR: Aksel'rod, S. M.; Danovich, V. I.; Ismaylov, A. Kh.; Melik-Shakhnazarov, A. M.

ORG: none

TITLE: A signal standard for nuclear magnetic coring equipment. Class 5, No. 177373  
10

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarniye znaki, no. 1, 1966, 9

TOPIC TAGS: nuclear magnetic resonance, earth science instrument, earth magnetic field, prospecting

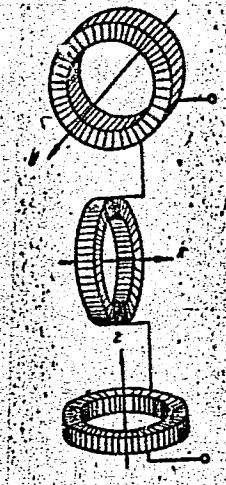
ABSTRACT: This Author's Certificate introduces a signal standard for nuclear magnetic coring equipment which may be connected to the measurement system in place of the pickup coil. The standard is independent of the direction of the terrestrial magnetic field with respect to the axis of the instrument and proportional to the intensity of this field. The device is made up of 3 identical toroids with mutually perpendicular axes. The internal cavities of these toroids are filled with the working substance.

UDC: 621.317.44  
550.83

Card 1/2

L 27362-66

ACC NR: AP6005276



SUB CODE: 08/

SUBM DATE: 29Nov63

Card 2/2

MELIK-SHAHNAZAROV, Aram Sergeyevich; POLOZHINTSEV, V.R., retsenzent;  
TAUKHMAN, L.A., red.; ANTIPOV, V.P., red.izd-va; GORDEYEVA,  
L.P., tekhn.red.

[Scientific technical information and promotion in the machinery  
industry] Nauchno-tekhnicheskaja informatsija i propaganda v  
mashinostroenii. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.  
lit-ry, 1960. 127 p. (MIRA 13:8)  
(Machinery industry--Information services)

MELIK-SHAKHNAZAROV, Aram Sergeyevich

Technical information in the U.S.S.R. Cambridge, Massachusetts  
Institute of Technology Libraries, 1961.  
VIII, 122 p. tables. (Massachusetts Institute of Technology Libraries,  
Library Monographs No. 3.)  
Translated from the original Russian: Nauchno-Tekhnicheskaya "Informatsiya  
i propaganda v mashinostroyeniya, Moscow, 1960.  
Bibliography: p. 121-122.

L 59009-65 EWT(1)/EWT(m)/EWP(t)/EWP(z)/EWP(b) Pad IJP(c) JD/MW

UR/0058/65/000/005/E136/E136

ACCESSION NR: AR5015995

28  
B

SOURCE: Ref. zh. Fizika, Abs. 5E1051

AUTHOR: Melik-Shakhnazarov, P. L.

TITLE: Investigation of the Hall effect in Cu-Ni-Mn ternary alloys

CITED SOURCE: Uch. zap. Azerb. un-t. Ser. fiz.-matem. n., no. 1, 1964, 91-97

TOPIC TAGS: Hall effect, ternary alloy, electric resistivity, copper alloy

TRANSLATION: The Hall effect in Cu-Ni-Mn ternary alloys is investigated for the first time as a function of the composition. The copper concentration in all the samples was 50%; the nickel concentration (from the first through the eighth sample) decreased from 45 to 10% in steps of 5%, while the manganese content increased from 5 to 40% by the same steps. The concentrations of the free electrons  $n$  in the indicated alloys, calculated from the value of the Hall constant  $R$ , are compared with the electric resistivity  $\rho$  of these alloys. With increasing manganese concentration (and with decreasing nickel concentration)  $R$  increases,  $n$  decreases accordingly, and  $\rho$  increases. In an alloy containing 50% copper, 20% nickel, and 30% manganese,  $n$  increases sharply while  $\rho$  decreases sharply. These "peaks" on both curves are related to the presence of a "singular" point which offers evidence of

Card 1/2

L 59009-65

ACCESSION NR: AR5015993

Formation of a chemical compound in this sample.

ENCL: 00

SUB CODE: MM, GS

JMM  
Card 2/2

ME 4182 SHAKHNAZARYAN, ALEX.

Zinc oxide and crystalline ammonium sulfate  
Rudnitskaya and A. K. Melik-Shakhnazaryan  
Ural State University. Zinc is treated  
with H<sub>2</sub>SO<sub>4</sub>. After treatment, the solution is  
heated to 100°C. The residue is washed  
with water and dried. The product is  
the residual sulfate.

ACC NR: AP6036971 (A,N) SOURCE CODE: UR/0181/66/008/011/3280/3281

AUTHOR: Malik-Shakhnazarov, V. A.

ORG: Physics Institute, AN GruzSSR, Tbilisi (Institut fiziki AN GruzSSR)

TITLE: Movement of charged dislocations in LiF crystals in an alternating electric field

SOURCE: Fizika tverdogo tela, v. 8, no. 11, 1966, 3280-3281

TOPIC TAGS: lithium fluoride, crystal dislocation phenomenon

ABSTRACT: The article describes the effect of vibration arising in LiF crystals upon application of an alternating electric field causing the movement of charged dislocations. The crystals were in a bent state (0.1%) which gave rise to edge dislocations of a single mechanical sign, and the dependence of the vibration amplitude on time and on the exciting voltage was measured. The relation of the observed phenomenon to plastic deformation and also the decrease in amplitude with time confirm a dislocation mechanism of the vibrations of the crystal. The relative deformation at the vibration amplitudes observed in the measurements was less than  $10^{-7}$ . This leads to the conclusion that the experiments were carried out in the range of amplitude-independent internal friction. The study shows that charged dislocations can be investigated in an alternating electric field. Orig. art. has 3 figures.

SUB CODE: 20/ SUBM DATE: 05May66/ ORIG REF: 001/ OTH REF: 007  
Card 1/1

MELIK-STEPANOV, Yu. G.

MELIK-STEPANOV, Yu. G. -"Investigation of methods of control of the enrichment processes in the handling of bank gravel". Moscow,1955. Min Higher Education USSR. Moscow Inst of Nonferrous Metals and Gold imeni M. I. Kalinin (Dissertation for the Degree of Candidate of Technical Sciences).

SO: Knizhnaya Letopis' No. 46, 12 November 1955. Moscow.

MELIK-STEPANOV, Yu.G.

Evaluating the operation of concentrating equipment in  
hydraulic mining. TSvet.met. 28 no.5:5-8 S-0 '55. (MIRA 10:10)  
(Hydraulic mining)

MELIK-STEPANOV, Yu. G.

137-1958-1-106

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 1, p 17 (USSR)

AUTHOR: Melik-Stepanov, Yu. G.

TITLE: Introduction of Modern Procedures for Gold Recovery on Dredges (K voprosu osvoyeniya sovremennykh skhem obogashcheniya na dragakh)

PERIODICAL: Kolyma, 1956, Nr 6, pp 23-32

ABSTRACT: Jigging is appropriate to placers in which Au or Pt is present in fine particles, if the ore is rich enough, particularly if the slime percentage is high. Jigging is essential if the placer contains workable percentages of other valuable components, which would be lost in the sluices of dredges. When milling is pursued by a combination of the processes of jigging and sluicing, jigging should be at the start of the process. If the placer contains considerable Au covered with film, particular attention must be given to the choice of a method of processing the jig concentrate, crushing it in a ball mill and re-jigging the amalgamation tailings. Problems of installation of pulsator jigs should be solved with consideration of optimum productivity of these machines with the given material to be processed, washability, slime percentage, coefficient of recovery, and the size of the gold particles in the

Card 1/2

137-1958-1-106

*Introduction of Modern Procedures for Concentration on Dredges*

placer. In deciding the question of remodeling a dredge for jiggling it is necessary to take into consideration the so-called minimal conventional content of Au in the placer.

A. Sh.

1. Gold ores--Purification    2. Platinum ores--Purification  
3. Mining engineering

Card 2/2

~~MELIK-STEPANOV, In.G.~~

Use of hydraulic cyclones for the concentration of tailings.  
Tsvet. met. 29 no.1:76 Ja '56. (MLRA 9:6)

1. Nigrizoloto.  
(Ore dressing)

MELIK-STEPANOV, Yu. G.

IVANOV, V.A., inzhener; MELIK-STEPANOV, Yu.G., inzhener.

Tasks of inventors in the field of ore dressing. Izobr.v SSSR  
2 no. 3:6-10 Ag '57. (MLA 10:1)  
(Ore dressing)

Melik-Stepanov, Yu. G.

136-10-5/13

AUTHORS: Ivanov, V.A. and Melik-Stepanov, Yu.G.

TITLE: There Must be a New Upsurge of Invention by the Masses in Mineral-Beneficiation (Za novyy pod'yem massovogo izobretatel'stva v tekhnike obogashcheniya poleznykh iskopayemykh)

PERIODICAL: Tsvetnyye Metally, 1957, Nr 10, pp.31-35 (USSR)

ABSTRACT: The author states that about three thousand proposals for improving beneficiation have been received by the committee dealing with inventions and discoveries for the Council of Ministers of the USSR and gives the percentage breakdown into occupation of the proposers and the subject of the proposals. He notes the more important recent proposals, naming their authors: I.N.Maslenitskiy, L.I.Grosman, D.I.Nedogoverov, V.A.Rundkvist, S.A.Medvedev, I.N.Shorshenov, A.S.Konev, S.A.Rokhlin, L.A.Glazunov, K.A.Rundkvist, A.I. Kirichenko, Cherkasov, Nikitin, V.M.Kondrashov, V.V.Finno, L.M.Krasov, S.A.Sysolyatin, I.N.Plaksin, M.S.Girdasov, D.I. Nedogovorov, Ye.A.Savari, V.A.Glembotskiy. The contribution of Sysolyatin was of particular practical interest, being a novel scheme for the separation of rutile and zircon by flotation, superior to that adopted in Australia, and leading

Card 1/2

136-10-5/13

There Must be a New Upsurge of Invention by the Masses in Mineral-Beneficiation.

to 95- and 94% extraction of titanium and zirconium, respectively, in separate concentrates. The author deals with the difficulty of establishing the novelty of proposals, and stresses the importance of continuous attention in industry to workers' proposals, of the coordination of inventive activities and of the encouragement of workers in these activities.

AVAILABLE: Library of Congress.

Card 2/2

137-58-6-11302

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 6 (USSR)

AUTHOR: Melik-Stepanov, Yu.C.

TITLE: Technical Assistance to the Amurzoloto Trust in Learning to Operate and Monitor Concentration Procedures on Dredge Nr 169 (91) of the Solov'yevsk Placer [Okazaniye tekhnicheskoy pomoshchi trestu Amurzoloto po osvoyeniyu i kontrolyu obogatitel'nykh protsessov na drage Nr 169 (91) Silov'yevskogo priiska]

PERIODICAL: Tr. N.-i. gornorazved. in-ta 'Nigrizoloto', 1957, Nr 22,  
p 149

ABSTRACT: On the basis of the study made, use of pulsator jigging on dredge Nr 169 (91) may be deemed impractical. The only rational procedures would be either pulsator jigging alone or sluicing alone.

A.Sh.

1. Ores--Processing    2. Dredges--Equipment

Card 1/1

Melik-Stepanov, Yu.G.

IVANOV, V.A.; MELIK-STEPANOV, Yu.G.

For a new rise of mass inventive activity relative to mineral  
dressing. TSvet. met. 30 no.10:31-35 0 '57. (MLRA 10:11)  
(Ore dressing)

SOV/136-58-12-4/22

AUTHORS: Nedogovorov, D.I., Melik-Stepanov, Yu.G. and Bandenok, L.I.

TITLE: Experimental Beneficiation of the Lean Titanium-Zirconium Deposits of Eastern Ukraine (Opytnoye obogashcheniye bednykh titano-tsirkoniyevykh rossyey vostochnoy Ukrayiny)

PERIODICAL: Tsvetnyye Metally, 1958, Nr 12, pp 14 - 19 (USSR)

ABSTRACT: The titano-zirconium sand deposits of Eastern Ukraine are of the alluvial type and contain 1-2% ilmenite and 0.1% zircon. Tests on the beneficiation of such sands have been carried out by various organisations in the USSR (Glavzoloto, Mintsvetmetzoloto, Gredmet, VIMS, Irgiredmet, Nigrizoloto and others), and abroad and the authors describe further work in this field. Two samples were used containing, respectively, 0.7 and 1.2%  $TiO_2$  and 0.15 and 0.21%  $ZrO_2$ . In washing tests, the sands behaved like easily washable ores (Table 1). Beneficiation tests were carried out with a NIGRI 2 VK-5 wet separator (control tests) and a primary concentration flowsheet involving disintegration, screening, hydraulic classification, separate concentration of each class on tables followed by magnetic separation. This flowsheet

Card1/3

SOV/136-58-12-4/22

**Experimental Beneficiation of the Lean Titanium-zirconium Deposits of Eastern Ukraine**

gave a concentrate needing finishing treatment. The authors recommend a flowsheet (figure) which was tested with a mixture (1:1) of the two samples. This gave a titanium concentrate with a yield of 1.7%, a titanium-dioxide content of 41.6% with a recovery of about 80%; a zirconium concentrate with a yield of 0.2%, a zirconium-dioxide content of 60% with a recovery of 51.0%; a zirconium product with a yield of 0.6%, a zirconium dioxide content of 19.65% with a recovery of 49.1%. To reduce the silica content of the concentrate to the 4% permitted for class three according to Technical Specification MPTU-2491-50 it must be ground to under 0.5 mm, followed by magnetic separation. The zirconium product is amenable to concentration on tables with one re-cleaning of the crude concentrate. Tests of amenability to concentration of the combined sample of sands using finishing operations gave the following: a titanium concentrate with a yield of 1.63%, titanium dioxide and silica contents of 43.0 and 4.0%, respectively, with a titanium dioxide recovery in the concentrate of

Card2/3

SOV/136-58-12-4/22

Experimental Beneficiation of the Lean Titanium-zirconium Deposits  
of Eastern Ukraine

78.5%; a zirconium concentrate with a yield of 0.35%  
and containing 62.6% zirconium dioxide, 0.83% titanium  
dioxide, 0.0016% phosphorus, with a zirconium-dioxide  
recovery in the concentrate of 92.7%. The authors  
conclude that the large-scale mining and treatment of  
the East Ukrainian deposits is economically justifiable.  
There are 1 figure and 4 tables.

Card 3/3

MELIK-STEPANOV, Yu. G.

Research on ore dressing and metallurgy carries on in institutes  
of the Romanian Peoples' Republic. Izv. vys. ucheb. zav.; tsvet.  
met. 2 no.2:144-145 '59. (MIRA 12:7)  
(Romania--Metallurgical research)

18.5000

75380  
SOV/149-2-5-6/32

AUTHORS: Melik-Stepanov, Yu. G., Bandenok, L. I.

TITLE: Concerning Wet Magnetic Separation for Dressing Alluvial Deposits

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Tsvetnaya metallurgiya, 1959, Vol 2, Nr 5, pp 31-38 (USSR)

ABSTRACT: An alluvial titanium sand-and-clay deposit in the Ukraine has a low content (7.5%) of ilmenite. Its ilmenite fraction consists of 57.6%  $TiO_2$ , 39.4% FeO, 1.1%  $SiO_2$ , and 1.14% MnO. The light minerals are: 89% feldspar and mica. Initially a finishing plant for dressing these deposits was designed, featuring the use of concentration tables after a preparatory hydraulic separation. After drying, finishing had to be done by MSL-3 magnetic separators. Pilot plant tests were run to find a better design for the future finishing plant. For pilot tests the NIGRI-2BK-5-40 separator was used (NIGRI stands for Mining and Prospecting Scientific

Card 1/5

Concerning Wet Magnetic Separation for  
Dressing Alluvial Deposits

75380  
SOV/149-2-5-6/32

Research Institute). During these pilot plant tests, the following results were obtained. Wet magnetic separation proved to be the most efficient method for dressing these alluvial deposits. In all stages of dressing and finishing the NIGRI-2BK-5-40 wet magnetic separator of the industrial type can be accepted for production. It has a capacity of 3.5 to  $4\frac{1}{2}$  t/hr for material of 4-mm size. The best results are obtained with the alluvial sand: 93.19% of the ilmenite content are extracted. The ilmenite so obtained is 98% pure. Dressing of the kaolin deposits yields only 86.6% of its ilmenite content. Based on the data of the pilot plant tests, the finishing plant will be able to base its production on the following figures which are considerably superior to those of the initially designed plant. A schematic flow diagram of the installation is shown in Fig. (3). There are 9 tables; 3 figures.

ASSOCIATION: Central Scientific Mining Prospecting Research Institute  
(TsNIGRI)  
SUBMITTED: September 15, 1958  
Card 2/5

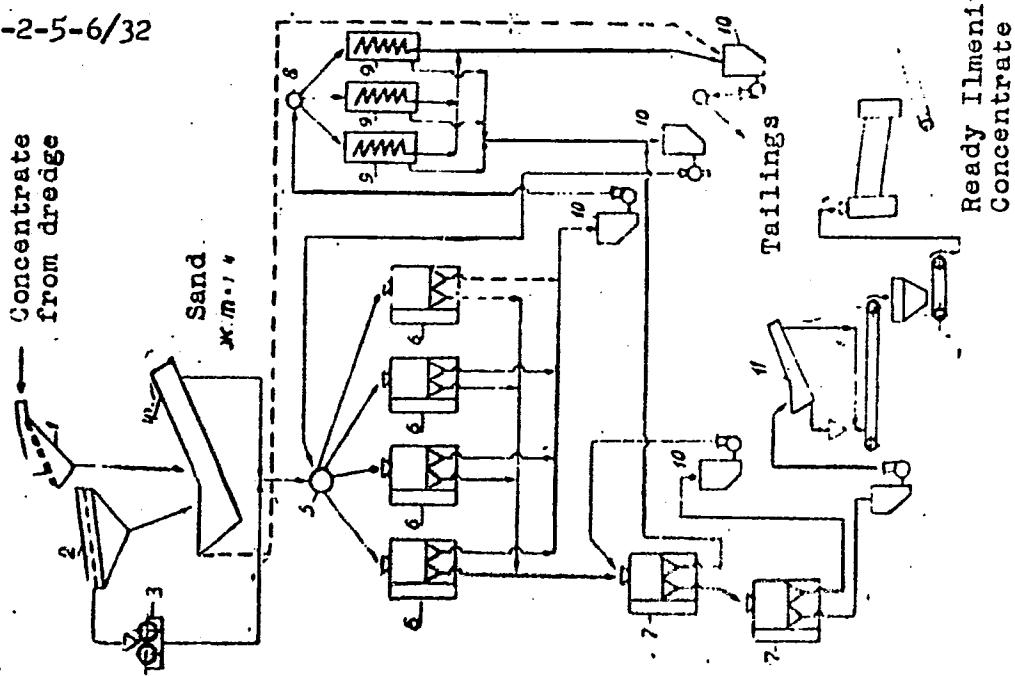
Concerning Wet Magnetic Separation for  
Dressing Alluvial Deposits

75380  
SOV/149-2-5-6/32

	Yield, %	Ilmenite content, %	Ilmenite distribution
Concentrate (magnetic fraction)	10.4	97.60	94.0
Tailings	89.6	.72	6.0
	100.0	10.77	100.0

Card 3/5

75380  
80V/149-2-5-6/32



Card 4/5

Fig. 3

Concerning Wet Magnetic Separation for  
Dressing Alluvial Deposits

75380  
SOV/149-2-5-6/32

Fig. 3. Schematic flow diagram of the finishing plant  
being revised: (1) Pulp slackening hopper; (2) screen  
GZh 2; (3) roller crusher DVG-2; (4) spiral separator,  
 $d = 1200$  mm; (5) pulp separator; (6) separator NIGRI-  
2BK-5; (7) separator NIGRI-2BK-5-40; (8) distributor;  
(9) spiral separator; (10) pump NP-2,3,6; (11) spiral  
separator KS-50; (12) drying kiln.

Card 5/5

MELIK-STEPANOV, Yu. G.; PLAESIN, I.N.

Selecting an efficient method for concentrating titanium-zirconium sands of Western Siberia. Izv. Sib. otd. AN SSSR no.3:18-29 '59.  
(MIRA 12:8)

1. Yakutskiy filial Sibirskogo otdeleniya Akademii nauk SSSR.  
i Institut gornogo dela Akademii nauk SSSR.  
(Titanium ores) (Zirconium ores) (Ore dressing)

MELIK-STEPANOV, Yu.G.

Mining and metallurgical research institutes of the Rumanian  
People's Republic. Izv.Sib.odt.AN SSSR no.5:134-137 '59.  
(MIRA 12:10)

1. Yakutskiy filial Sibirskogo otdeleniya Akademii nauk SSSR.  
(Rumania--Metals--Research)

MELIK-STEPANOV, Yu.G.; SOKHIN, Yu.M.; STABIN, I.P.; ROZHKOV, I.S..  
otv.red.; MAKARENKO, M.G., red.izd-va; KARPOV, V., tekhn.red.

[New methods of heavy fluid separation and use of magnetic  
separation in flowsheets for dressing complex ores and  
placers] O novykh raznovidnostakh metoda razdeleniya v  
tiazhelykh sredakh i primenenii magnitnoi separatsii v skhe-  
makh obogashcheniya kompleksnykh rud i rossypei. Moskva, Izd-vo  
Akad.nauk SSSR, 1960. 35 p. (MIRA 13:8)  
(Ore dressing)

S/137/61/000/011/037/123  
A060/A101

AUTHORS: Mitrofanov, S. I., Melik-Stepanov, Yu. G., Sokhin, Yu. M., Borisov, V. V.

TITLE: On a new application of movable heavy media for the concentration of minerals with specific gravity exceeding three

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 11, 1961, 7, abstract 11G50 ("Nauchno soobshch. Yakutskiy fil. Sib. otd. AN SSSR", 1960, no. 3, 50 - 61)

TEXT: One of the problems of this work was the finding of the cheapest, but sufficiently efficacious materials for the moving layer. The following ore materials were studied: hematite-magnetite dredge slimes, magnetic fraction of jiggging concentrate - 1 mm, ground up magnetic fraction of the jiggging concentrate - 1 mm and even - 1 + 0.5 mm. The best results were obtained with a moving layer of ilmenite-magnetite material. Its high specific gravity of 4.75 makes it possible to vary the specific gravity of the moving layer between wide limits depending on the grist fineness. In course of the investigations the necessary parameters were studied. When the volume of the weighting compound is great then the

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On a new application of movable heavy media...

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vibratory action on the heavy moving medium in "BK" ("VZh") apparatus acts to render it denser and raise its specific gravity to 3.15 - 3.2. An electronic apparatus has been worked out for the control of the specific gravity of the medium, using a capacitance transducer as the density indicator. A semi-industrial installation "VZh-3" has been designed and constructed, and is being tested. The schematic diagrams are given.

A. Shmeleva

[Abstracter's note: Complete translation]

Card 2/2

MELIK-STEPANOV, Yu.G.; SOKHIN, Yu.M.; TROFIMOV, G.N.

Jigging of ores containing valuable minerals having a specific  
gravity of 3 - 4. Nauch. soob. IAFAN SSSR no.3:47-49 '60.  
(MIRA 16:3)  
(Ore dressing)

MITROFANOV, S.I.; MELIK-STEPANOV, Yu.G.; SOKHIN, Yu.M.; BORISOV, V.V.

New application of movable heavy media for the concentration of  
minerals having a specific gravity exceeding three. Nauch.  
scob. IAFAN SSSR no.3:50-61 '60. (MIRA 16:3)  
(Ore dressing)

MELIK-STEPANOV, Yu.G.; SOKHIN, Yu.M.; ZASKEVICH, M.V.

Practice of treating sands of deluvial and eluvial placer deposits.  
Nauch.socb.IAFAN SSSR no.4:86-93 '60. (MIRA 14:12)  
(Yakutia--Ore dressing)

MELIK-STEPANOV, Yu.G.; SOKHIN, Yu.M.

Problem of dressing highly impregnated dense ores. Nauch.scoob.  
IAFAN SSSR no.4:94-100 '60. (MIRA 14:12)  
(Ore dressing)

MITROFANOV, S.I.; MELIK-STEPANOV, Yu.G.; SOKHIN, Yu.M.; BORISOV, V.V.

Ore dressing on a shaker trough. TSvet.met. 33 no.1:17-22  
Ja '60. (MIRA 13:5)  
(Ore dressing--Equipment and supplies)

PLAKSIN, I.N.; MELIK-STEPANOV, Yu.G.; SOKHIN, Yu.M.; MAKARENKO, M.G.,  
red. izd-va; TIKHOMIROVA, S.G., tekhn. red.

[Dressing ores in heavy media] Obogashchenie rud v tiazhe-  
lykh sredakh. Moskva, Izd-vo Akad. nauk SSSR, 1962. 110 p.  
(MIRA 15:10)

(Ore dressing)

VARVARIN, G.B.; ZHAVORONKOV, V.Ya.; FILIPPOV, Ye.M.; BORISOV, V.B.;  
MELIK-STEPANOV, Yu.G.

Determining the density of the flow of a mineral suspension during  
ore dressing on shaking troughs, using a source of gamma rays.  
Tsvet. met. 36 no.7:7-10 Jl '63. (MIRA 16:8)  
(Ore dressing) (Suspensions (Chemistry)--Density)  
(Gamma rays--Industrial applications)

MELIK-STEPANOV, Yu.G., kand. tekhn.nauk, otv. red.

[Theory and practice of the gravity dressing of ores  
from northeastern deposits] Teoriia i praktika gravi-  
tatsionnogo obogashcheniya rud Severo-Vostoka. Moskva,  
Nauka, 1964. 97 p. (MIRA 17:11)

1. Akademiya nauk SSSR. Sibirskoye otdeleniye. Yakutskiy  
filial.

MELIK-STEPANOVA, A.G., inzhener; KARPOVA, N.N., inzhener; CHERMENKO, B.G.,  
kandidat tehnicheskikh nauk; DAVYDKOV, M.I., inzhener.

Results of investigating the preparation properties of coals which are  
difficult to analyze. Nauch.rab. VUGI no.9:68-85 '53. (MLRA 7:6)

1. Laboratoriya obogashcheniya ugley. (Coal--Analysis) (Coal--Preparation)

MELIK-STEPANOVA, A.G.

Use of high ash coal from the Ekibastuz deposit. Obog. i brik. ugl.  
no.7:3-15 '58. (MIRA 12:7)

(Ekibastuz region--Coal)

PAKHALOK, I.F., inzh.; PODKUYKO, M.I., inzh.; MELIK-STEPANOVA, A.G., inzh.

Conference held in Prague on June 9-11, 1958 by a working group of experts on problems of coal preparation of the Permanent Commission on Coal in the Mutual Economic Assistance Council. Obog. i brik. ugl. no.9:91-93 '59. (MIRA 12:9)  
(Coal preparation--Congresses)

PAKHALOK, I.F., inzh.; MELIK-STEPANOVA, A.G., inzh.; LABAKHUA, M.S., inzh.

Pulp thickening prior to flotation in battery hydro-cyclones in  
the Tkvarcheli Central Coal Preparation Plant. Obog. i brik. ugl.  
no.11:7-10 '59. (MIRA 13:6)

(Tkvarcheli--Coal preparation)  
(Separators (Machines))

KOZKO, A. I., inzh.; MELIK-STEPANOVA, A.G., inzh.; YURGENKOV, N. I., inzh.;  
ZAYTSEVA, Ye.I., inzh.; SEMATCROVA, Ye.A., inzh.

Investigating Novovolynskii deposit coals. Obog. i brik. ugl.  
no.12:17-29 '59. (MIRA 13:6)  
(Lvov-Volyn' Basin--Coal)

DUNAYEV, M.N., inzh.; MELIK-STEPANOVA, A.G., inzh.; ORDANSKAYA, B.S., inzh.

Using a hydrocyclone battery in the pulp-water system of coal  
preparation plants. Obog.i brik.ugl. no.14:21-35 '60. (MIRA 14:5)

(Coal preparation) (Separators (Machines))

KOYBASH, V.A.; KULIK-STEPANOVA, A.G., insh., retsenzent; ROMANOVA, L.A.  
red. izd-va; IL'INSKAYA, G.N., tekhn. red.

[Testing and production control in coal preparation plants]  
Oprobovanie i kontrol' na ugleobogatitel'nykh fabrikakh. Mo-  
skva, Gos.nauchno-tekhn. izd-vo lit-ry po gornomu delu, 1961.  
166 p.  
(Coal preparation plants--Testing) (Production control)

SOLOMIN, Konstantin Vasil'yevich; MELIK-Stepanova, A.G., otv. red.; ROMANOVA, L.A., red. izd-va; SABITOV, A., tekhn. red.

[Processing mineral placer deposits] Obogashchenie peskov rossyapnykh mestorozhdenii poleznykh iskipaemykh. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po gornomu delu, 1961. 398 p. (MIRA 14:11)  
(Hydraulic mining) (Ore dressing)

DUNAYEV, M.N.; TURCHENKO, V.K.; GREEBENSHCHIKOV, V.P.; MELIK-  
STEPANOVA, A.G.; OL'FERT, A.I., otv. red; PRONINA,  
N.D., tekhn. red.

[Preparation, dewatering, and drying of fine coal; survey of  
foreign material] Obogashchenie, obezvozhivanie i sushka mel-  
kogo uglia; obzor zarubezhnykh materialov. Moskva, TSentr.  
in-t tekhn. informatsii, 1962. 77 p. (MIRA 164)  
(Coal preparation)

DUNAYEV, Maksim Nikitovich, inzh.; TURCHENKO, Vasiliy Kuz'mich, inzh.;  
MELIK-STEPANOVA, Alla Georgiyevna, inzh.; GREEBENSHCHIKOV,  
Vladimir Petrovich, inzh.; DREMAYLO, P.G., otv.red.; OL'FERT,  
A.I., red.izd-va; BOLDYREVA, Z.A., tekhn. red.

[Preparation of unclassified coals] Ubogashchenie neklassifi-  
tsirovannykh uglei. [By] Dunaev, M.N. i dr. Moskva, Gosgortekh-  
izdat, 1963. 181 p.  
(Coal preparation)

MELIK-STEPANYAN, A.M.

Development of Russian photographic sound recording equipment.  
Usp.nauch.fot. 2:195-206 '54. (MLRA 7:5)  
(Sound--Recording and reproducing) (Motion pictures, Talking)